

The following were presented for publication :

“Descriptions of the Gobioid Genera of Western North America.”  
“Note on the Genera Hemiramphinae,” and “On the Genus Periophthalmus.” By Theo. Gill.

“Description of a collection of Jasper Lance-heads, found near Trenton, N. J.” By Charles C. Abbott.

“Descriptions of new and little known species of Pieidæ, etc.” By John Cassin.

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Sept. 29th.

MR. VAUX, Vice-President, in the Chair.

Eighteen members present.

On report of the Committee, Mr. Cassin's paper, read Sept. 22d, was ordered to be published in the Journal.

On leave granted, Dr. Bridges presented a paper entitled “Supplement to descriptions of soft parts and embryonic forms of Unionidæ.” By Isaae Lea. Which, on report of a Committee, was ordered to be published in the Journal.

On report of the respective committees, the following were ordered to be published :

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Synopsis of the POMACENTROIDS of the Western Coast of North and Central America.

BY THEODORE GILL.

As some of the species of the family of Pomacentroids inhabiting the Pacific waters of our continent have been involved in confusion, and very diverse species united, the present article is submitted in rectification of such errors, and of others formerly committed by the author.

The family of Pomacentroids is accepted with the types referred to it by Dr. Günther; that gentleman has, however, lately established a genus called *Melambaphes*\* for a species supposed to be the *Glyphisodon nigroris* of Cuvier, which he is uncertain whether to refer to the present family or the “group Cantharina” of the Sparoids. His description does not enable us to positively decide, as he does not describe the course of the lateral line, which would have probably enabled one to refer it to its proper family,—the lateral line being interrupted in the Pomacentroids, and continuous in the Sparoids and Pimelepteroids. As the new genus is, however, characterized by its “small ciliated scales” (L. lat. 100), the presence in each jaw of “a series of trenchant, tricuspid teeth, and with a broad band of villiform teeth behind,” and of “fourteen or thirteen spines in the dorsal fin, and three in the anal fin,” there can be little doubt that it belongs to Günther's “group Cantharina.”

The following artificial table will assist in the determination of the genera. *Lepidozygus*, *Parma* and *Acanthochromis* are genera unknown to me through autopsy:

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\* *Melambaphes* *Gthr.*, An. and Mag. Nat. Hist., ser. 3, vol. xi. p. 115. Dr. Gunther is perhaps mistaken in referring this species to the *Glyphisodon nigroris*, C. et V.: those naturalists were too keen and profound to have placed a species of *Melambaphes* in *Glyphisodon* after an examination which induced their surprise in discovering three anal spines, notwithstanding the resemblance to the *Glyphisodon rahi* and *bengalensis*. It is possible that the third spine was an ossified ray. The *Melambaphes* of Gunther having been then named from a misconception, it is better that it should obtain a new name that shall not perpetuate the error: it may therefore be called *M. Guntheri*.

- I. Scales large or moderate (24—40); opercular bones scaly and not striated..... POMACENTRINÆ.
  - A. Dorsal spines 12—14.
    - B. Scales in less than 30 oblique rows.
      - C. Teeth compressed, uniserial.
        - \* Teeth fixed, entire.
          - 1. Preoperculum serrated in adult..... Pomacentrus.
          - 2. Preoperculum entire; scales in about 14 longitudinal rows..... Pomataprion.
          - 3. Preoperculum entire. Scales in about 20 longitudinal rows..... Hypsypops.
        - \*\* Teeth fixed, more or less notched in middle.
          - 1. Snout acute. Preorbital low. Teeth emarginate..... Glyphidodon.
          - 2. Snout blunt and high. Preorbital high. Teeth deeply notched..... Euschistodus.
        - \*\*\* Teeth immovable, tricuspid..... Dischistodus.\*
        - \*\*\*\* Teeth in the upper jaw moveable..... Microspathodon.
      - CC. Teeth conical, in more than one row.
        - \* Preoperculum entire..... Chromis.
        - \*\* Preoperculum serrated..... Dascyllus.
    - BB. Scales in 35—40 oblique rows.
      - Preoperculum serrated..... Lepidozygus.
      - Preoperculum entire..... Parma.
    - AA. Dorsal spines about 17..... Acanthochromis†
- I. Scales small (45—70). Operculum and suboperculum radiately striated..... AMPHIPRIONINÆ.
  - \* Operculum and suboperculum spinous..... Amphiprion.
  - \*\* Operculum and suboperculum serrated. Preorbital with a long spine..... Premnas.

Subfamily POMACENTRINÆ Gill.

Genus POMACENTRUS Gill.

This genus includes only two Californian species, the *P. quadrigutta* and *P. Bairdii*, formerly referred to it, belonging to another. The two species may be briefly distinguished as follows:

*Synopsis.*

- I. Lower limb of the preoperculum scaly; height nearly equal to one-third of total length. Head above (in youth), with a blue line on each side continued uninterruptedly backwards to each side of the dorsal ridge; another parallel line is continued backwards from the upper angle of the eye. Back of caudal peduncle with ocellus.
  - a. Color similar above and below, in youth diffused blue on the centres of the scales, and with a dorsal ocellus. In the adult uniform purplish brown, and with no dorsal ocellus ..... *P. rectifrenum*.
  - β. Color above brownish, with blue on the centres of the scales; below the lateral line and on tail brownish yellow; and in front of latter, dotted with blue on each scale. Dorsal ocellus very distinct in adult as well as young..... *P. flavilatus*.

\* *Type.* *Pomacentrus fasciatus* C. et V.  
 † *Type.* *Dascyllus polyacanthus* Blkr.

## POMACENTRUS RECTIFRÆNUM Gill.

*Pomacentrus rectifrænum* Gill, Proc. Academy of Natural Sciences of Phila., 1862, p. 148.

*Pomacentrus rectifrænum* Günther, Catalogue of the Fishes in the British Museum, vol. iv. p. 26.

*Pomacentrus rectifrænum* Gill, in Günther's op. cit., vol. iv. p. 27.

*Pomacentrus analigutta* Gill, in Günther's op. cit., vol. iv. p. 27.

This species undergoes great change with age, and on two suites of specimens two nominal species were formerly based, the author having been deceived by the comparatively long retention of the colors of the young in several individuals, and the early assumption of the adult state by others.

The color in extreme youth, as represented in a specimen eight lines long, is reddish-brown, with blue lines obliquely crossing each scale, and forming as many subvertical, scarcely interrupted blue lines crossing the body as there are rows of scales. On the back and lower part of the anterior soft dorsal is a large ocellus, and behind the fin is a smaller one. The head above has two very distinct blue lines continued from the snout over each eye, where they are most distant, and again approximating and continued, one on each side of the base of the dorsal fin, but under the fin rather broken into a linear row of spots; another line crosses the eye-ball above, and behind the upper angle of the orbit is a line which is continued to the row of scales above the lateral line; a bar crosses the preorbital; a line runs along the suborbital chain; another line extends backwards from the corner of the mouth, and under the suborbital one; and a blue line colors the upper lip. On each of the opercular scales is a bluish blotch. The dorsal and anal fins are spotted with blue, a spot existing on each scale, and a blue bar crosses the base of the last anal rays. The caudal is brownish, as are also the pectorals. The ventrals dark, and the spine outside bluish, like the front of the anal.

These colors are retained until the fish has attained a length of more than two inches, the chief change being effected by the slightly greater isolation of the spots on the rows above the lateral line, so as to break their continuity as lines; and especially in the fading away of the blue ring and ocellus of the dorsal, which has then become very faint, and is the first to disappear. Finally, in the very aged specimens, more than three inches long, the color of the body and scaly portion of the fins has become almost a uniform brownish-chesnut; and very indistinct traces of the lines on the upper surface and sides of the head are perceptible. The naked portions of the dorsal and anal, as well as the ventral fins, are very dark, and the pectorals yellowish. The profile is also apparently steeper and more convex; and the body more obese.

In studying the development of this species, I have had before me not less than thirty-two individuals, exhibiting every gradation, from the specimen eight lines long to one nearly three inches and a half long,—having discovered since my former studies several important specimens in a collection made at Panama by Capt. Dow. My opportunities for knowing the changes of this species, as well as the West Indian ones, have, therefore, been much greater than Dr. Günther's.

## POMACENTRUS FLAVILATUS Gill.

*Pomacentrus flavilatus* Gill, Proc. Academy of Natural Sciences of Phila., 1862, p. 148. Gill, in Günther's Catalogue of the Fishes in the British Museum, vol. iv. p. 27.

*Pomacentrus rectifrænum* pt. Günther, (excl. desc.)

This species, so far as known, undergoes little change during its progress to adult age.

The color above the lateral line, and on the scaly portion of the dorsal fin before the middle of its soft part, is dark-brown, with blue on the centre of  
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each scale; while a large ocellus, very dark-blue, margined with light, adorns the back and the dorsal fin between the last spine and the sixth ray; and a small ocellus is on the back of the tail, behind the dorsal fin. Below the lateral line and behind the dorsal ocellus, the color is brownish-yellow, darker in front along the margins of the scales, and with an indistinct bluish *dot* in the centre of each scale, except on the caudal peduncle, where they are absent. The head above has two blue lines; one on each side, continued from the snout backwards on the nape; another line is continued from the upper angle of the orbit to the row of scales above the lateral line. A bar crosses the preorbital, and a line interrupted passes along the suborbital chain; a bar is behind the ends of the maxillary. The scales on the cheeks and opercula are dotted with blue. The dorsal fin, behind its produced rays, as well as the anal, caudal, pectoral and ventral fins, are yellowish; the former faintly marked with blue on its scales, and margined in front with dusky; the ventrals are likewise margined on their outer edges with dusky.

#### Genus POMATAPRION Gill.

This genus is very closely related to *Hypsypops* and *Pomacentrus*, but is distinguished from the former by the much higher and more covered scales, arrayed in about fourteen longitudinal rows; the prolongation of the lobes of the caudal fin, and the scaly snout. From *Pomacentrus* it differs in the entire preoperculum in the extremely old as in the young, and the higher preorbital region. From *Euschistodus* it is distinguished by the entire teeth; from *Glyphidodon* by the entire teeth, elevated preorbital region, form of the head, &c.; and from *Parma* by the size of the scales.

There are two Californian species of this genus, which may be distinguished as follows:

- I. Lower limb of the preoperculum naked; height of body contained about  $2\frac{2}{3}$  times in the total length. Head above in youth, with two blue lines, one on each side, decurrent over or behind the eye, and two blue spots or lines on nape. Back of tail behind dorsal with a dark spot bordered in front by blue.
- α. Body uniformly colored, with two whitish blue spots above lateral line below fourth and last dorsal spines..... P. dorsalis.
- β. Body below and tail yellowish, without distinct blue spots. Occiput with two parallel blue lines in youth..... P. Bairdii.

#### POMATAPRION DORSALIS Gill.

*Hypsypops dorsalis* Gill, Proc. Academy of Natural Sciences of Phila., 1862, p. 147 (old).

*Pomacentrus quadrigutta* Gill, op. cit., 1862, p. 149 (young). Gill, in Günther's Catalogue of the Fishes in the British Museum, vol. iv. p. 27.

Günther, Catalogue of the Fishes in the British Museum, vol. iv. p. 27.

*Glyphidodon dorsalis* Günther, op. cit., vol. iv. p. 50.

In the young, the color of the body is a purplish-brown, varied with blue on the centre of each scale, the blue diminishing on the scales of the tail towards the fin. On each side there is a blue spot on the first scale above the lateral line, on the scale above the seventh of the lateral line and below the fourth dorsal spine, and another on the one above the fifteenth scale and below the eleventh or twelfth spine; on the tail, behind the dorsal fin, there is a transverse dark band, bordered in front by blue. The head above has two blue lines, one on each side, running from, and decurrent over, the eye behind the orbit. The forehead is indistinctly marked with blue in the centre of each scale; and on the nape there are two oblong blue spots, one on each side. A continuous blue line is continued from the side of the snout along the suborbital chain, and unites with the line decurrent behind the orbit.

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Behind the end of the supramaxillary, there is a vertical blue bar. The scales of the cheeks and opercula are spotted with blue in the centre. Lips immaculate brown. The dorsal fin on its scaly portion is similar to the back; the anal has a blue spot at the base of its last rays, and its front, like the outer edge of the ventral fin, is blue. The pectoral inside has also a blue line across the base of the upper rays.

As the fish advances in age, the blue on the centres of the scales fades, and, finally, the color of the whole body, as well as the scaly portions of the fins, become a purplish-brown; but the spots on the scales above the first, seventh and fifteenth (sixteenth) scales of the lateral line remain, as does also the one bordered before by blue in the rear of the dorsal fin. The coloration on the head simply becomes fainter, and the lines narrower and somewhat interrupted. The fins are uniform and spotless, except the pectoral, which retains the transverse bar which was assumed in its youth.

This species, in its young state, was formerly described as a *Pomacentrus*, the preoperculum having a scolloped appearance, produced by the muciferous ducts and their mouths, and thus simulating the serrature of young *Pomacentri*, misleading Dr. Günther as well as myself,—especially as it had the coloration and form of a *Pomacentrus*. The border in the old is not so much exposed, and is perfectly entire, while the preorbital has gained in elevation at the expense of the eye. The uniform color of the body is also in strong contrast to the variegated sides and fins of the young.

The smallest specimen obtained by Mr. Xantus is nearly an inch and a half long; and nine were obtained varying from that length to little more than two inches,—none offering any essential difference. A single adult, distorted, and presenting a peculiar appearance, having a length of little more than four inches, was also collected.

POMATAPRION BAIRDII Gill.

*Pomacentrus Bairdii* Gill, Proc. Academy of Natural Sciences of Phila., 1862, p. 149. Gill in *Günther's* Catalogue of the Fishes, &c., vol. iv. p. 27. *Pomacentrus rectifrænum* pt. *Günther*, (excl. desc.)

The color in extreme youth, as represented by a specimen ten lines long, is greenish-yellow, modified by blue above on the middle of each scale, the margins alone being brownish; below a line drawn from the axil of the pectoral to that of the dorsal fin, the blue has disappeared, and the brownish-yellow is conspicuous, sprinkled over with a few faint, darker dots, which themselves become obsolete on the abdomen and caudal peduncle; immediately behind the dorsal fin there is a dark spot, margined in front by blue. The head above has two blue lines continued from snout and decurved over the eye-ball and behind the orbit; on the forehead there is a transverse blue bar, and on the nape two nearly parallel longitudinal blue lines. An oblique blue bar crosses the preorbital; a series of blue dots on the suborbital chain is continued to meet the deflected line behind the eye, and there is a blue bar behind the end of the maxillary. The lips and opercula are brown. The dorsal fin, on its scaly portion, including all the spinous portion, except a marginal band, and the lower half of the soft, is blue, the scales scarcely being margined by brown; the other fins are colorless, except the margin of the anal, which is dark.

The species, with advancing age, loses the intensity of the blue above, but that color spreads downwards faintly, and is perceptible on all the scales except those of the abdomen and hinder portions of the caudal peduncle. The blue on the upper surface of the head and the preorbital finally becomes obliterated, but the series on the infraorbital chain and the bar behind the maxillary remains, while the opercula assume blue dots. The fins also, especially the ventral and anal, have become dusky.

I have seen nine specimens of the *Pomataprion Bairdii*, from Cape St. Lucas 1863.]

and Panama, varying from ten lines to two inches and a half in length, and have been thus enabled to study the development of the coloration, which is quite peculiar in the gradual spreading of the blue, while it becomes fainter at the same time with age. The species is closely allied to the *P. quadrigutta*, having nearly the same height, the naked lower limb of the preoperculum, and the pattern of the upper surface of the head. It has high preorbital bones, and a wide convex forehead.

The specimen mentioned under this name in Dr. Günther's Catalogue, can scarcely belong to it, as that author would otherwise not have confounded it with the *P. rectifrenum*, which belongs to a different genus. The name under which the *P. Bairdii* was sent has doubtless by some accident been shifted to the young of *P. rectifrenum*, and the specimen of the former lost.

#### Genus HYPHYPOPS Gill.

##### *Synonymy.*

Hypsypops *Gill*, Proc. Academy of Natural Sciences of Phila., 1861, p. 165.

Hypsypops *Gill*, op. cit., 1862, p. 147.

Glyphisodon sp. *Girard*.

Parma sp. *Günther*.

Body oblong-oval, with the dorsal and inferior outlines correspondent, rapidly contracted under the soft dorsal and anal fins, constricted behind those fins, and with the caudal peduncle short and high.

Scales little or no higher than long, subpentagonal, with a muricated border behind; arranged in less than thirty oblique rows, and about twenty longitudinal ones. Smaller ones extend far on the vertical fins. Lateral line tubular, terminated under the posterior portion of the dorsal fin.

Head rather higher than long, constricted at the nape, with the forehead prominent, in front of which the profile is steep, but depressed, and the snout protuberant and jaws rounded. Infraorbital chain in front elevated, higher than the diameter of the eye, subangulated at the corner of the mouth, and thence trending very obliquely upwards and backwards, under and behind the eye. Eyes rather small. Preoperculum unarmed; operculum with a bony projection behind. Cheeks with rather small scales; operculum and suboperculum with large ones. Preorbital, and region in front of forehead, naked.

Mouth small, with its periphery semioval, and the supramaxillaries ceasing in front of the eyes; little retractile under preorbital; surmounted by a strong ridge. Lips rather thick, continuous at angle with each other; lower free all around.

Teeth fixed, uniserial, contiguous, narrow, blunt and entire; in a short, semioval row, and behind deflected outwards and downwards on the upper jaw; in the lower, in an oblong, semioval row.

Branchiostegal rays five.

Dorsal fin with twelve subequal spines, and the soft portion produced in front of the middle and emarginated behind.

Anal fin armed with two stout spines, and with a soft portion like the dorsal.

Caudal fin notched, with the lobes rounded.

D. XII. 16. A. II. 15. C — P. — V. 1. 5.

5

Scales 28 —

14

#### HYPHYPOPS RUBICUNDUS Gill.

##### *Synonymy.*

Glyphisodon rubicundus *Girard*, Proc. Academy of Natural Sciences of Phila., vol. vii. p. 148, 1854. *Girard*, Explorations and Surveys for a Railroad Route, &c., vol. x. *Fishes*, p. 161, pl. xxiv. *Girard*, op. cit., vol. x. Whipple's Report, *Zoology*, p. 51.

*Hypsypops rubicundus* Gill, Proc. Academy of Natural Sciences of Phila., vol. xiii. p. 165, 1861.

*Parma rubicunda* Günther, Catalogue of the Fishes in the British Museum, vol. iv. p. 58.

This species, which has only twenty-eight transverse rows of scales, has been referred by Dr. Günther to his genus *Parma*, characterized by having the scales "in more than thirty transverse series," thus distinguished from *Glyphidodon*, which has the "scales in 30 or less transverse series." It is, however, due to Dr. Günther, to add that he was logically correct from the data in text in making such an approximation, the species having been truthfully affirmed by Dr. Girard to have twenty longitudinal rows; but no mention was made of the number of transverse ones. The species is, however, distinguished by the comparative longitudinal extension of the scales, which is accompanied by a less number compared with the longitudinal rows than might have been expected. On the other hand, Dr. Günther was logically in error in giving the new name *Parma* to his genus, as he supposed the type and only species which originally served for *Hypsypops* was a true representative of the former genus; and the latter name in such a case would, of course, have had to be retained. The characters on which *Hypsypops* was founded were certainly quite different from those serving for *Parma*; which were the most valuable is not for the reviewer to decide. As the two types, however, belong to different genera, *Parma* should be retained for the species having its characters.

The figure accompanying Girard's description is incorrect as to the form of the dorsal and anal fins and the size of the opercular scales. The fins are acutely produced in advance of the middle, and emarginated behind, while the scales of the operculum are rather smaller than those of the sides. The number of transverse rows of scales is correctly given.

#### Genus EUSCHISTODUS Gill.

This genus, as already remarked, has the physiognomy much like that of *Hypsypops* and *Pomataprion*, but is distinguished from them by the deeply grooved and notched teeth, and is, perhaps, really more nearly allied to *Glyphidodon*. Two species are found along the Western Coast of America, and a third species, closely related to one of the former, is found on the opposite side of the continent.

#### EUSCHISTODUS CONCOLOR Gill.

*Euschistodus concolor* Gill, Proc. Academy of Natural Sciences of Phila., 1862, p. 145.

*Glyphidodon concolor* Günther, Catalogue of the Fishes in the British Museum, vol. iv. p. 37.

This species, which is very distinctly banded in youth, loses its bands in old age, and becomes of a uniform chocolate or purplish-brown, with a brown breast and abdomen.

A species very nearly related to *E. concolor*, having almost exactly the same proportions, number of rays (D. XIII. 12. A. II. 10. P. 18.), scales,  $(26 \frac{4}{9})$ ,

&c., is found on the eastern coast of the isthmus, one specimen from Aspinwall having been sent to the Smithsonian Institution by the Rev. Mr. Rowell. The color is purplish-brown, dotted with green on the centre of each scale, and with the throat and abdomen covered with a lake-colored coat. The teeth are smaller, there being twenty-one or -two on each side of the upper jaw, seven of which are in the deflected portion behind; and in the lower jaw there are about twenty-five on each side. The anal fin has its produced portion rounded, rather than angular, as in *E. concolor*; and in the specimen 1863.]

collected, the lower lobe of the caudal fin is subtruncated behind, but perhaps is abnormally so. To this species are possibly referrible the specimens from the island of Cordova, enumerated under the head of *E. concolor* by Günther. The Aspinwall type may be named *Euschistodus analogus*.

EUSCHISTODUS DECLIVIFRONS Gill.

*Euschistodus declivifrons* Gill, Proc. Academy of Natural Sciences of Phila., 1862, p. 37.

*Glyphidodon declivifrons* Günther, Catalogue of the Fishes in the British Museum, vol. iv. p. 38.

This species extends from Cape St. Lucas to Panama, where a fine adult specimen was obtained by Capt. Dow.

Genus GLYPHIDODON Lac.

GLYPHIDODON TROSCHELII Gill.

*Glyphidodon troschelii* Gill, Proc. Academy of Natural Sciences of Phila., 1862, p. 150. Günther, Catalogue of the Fishes in the British Museum, vol. iv. p. 36.

*Hab.*—Cape St. Lucas.

Genus CHROMIS Cuvier.

*Heliastes* Cuv. et Val.

*Furcaria* Poey.

*Heliastes* Lowe, Günther.

The genus *Chromis* was especially established upon the *Sparus chromis* of Linnaeus, by Cuvier, in the year 1815, in the "Mémoires du Muséum d'Histoire Naturelle;" and therefore the name must be retained for that type, while the *bolli* of the Nile must assume the name *Tilapia*, as M. Auguste Duméril and the author have shown.

I am not yet able to perceive any generic distinction between *Chromis* and *Furcaria*, although Prof. Poey was quite correct in his statement that the latter has sometimes seven branchiostegal rays, as he has forwarded to me a preparation of the *F. puncta*, exhibiting that number. I have myself dissected out a membrane with six rays.

CHROMIS ATRILOBATUS Gill.

*Synonymy.*

*Chromis atrilobata* Gill, Proc. Academy of Natural Sciences of Phila., 1862, p. 149.

*Heliastes marginatus* pt. Günther, Catalogue of the Fishes in the British Museum, vol. iv. p. 64.

The color is dark-green, tinged with olive above, and lighter below, while there is a very distinct sulphur spot behind the dorsal fin. The head above is very dark, light-green on the sides, silvery on the preorbital region. The soft portion of the dorsal fin is blackish, except the hinder portion (four or five rays), which is yellowish. The anal fin is greenish, dotted with black, and with the spines green. The caudal fin is greenish yellow, dotted with black, with a black band along each lobe, and with the margins above and below bordered with greenish. The pectoral and ventral fins are greenish; the former black at the base.

The snout is rather shorter than the eye. The teeth of the outer row are enlarged, and behind them is a narrow band of scattered ones.

There are four longitudinal rows of scales between the median dorsal row and the lateral line.

This species is apparently as closely related to the *Chromis puncta* ex Poey as to the Brazilian *C. marginata*, or *Heliastes marginata* of Castelnau, with which it has been, on too slight grounds, identified by Dr. Günther, and in

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spite of the difference in the number of the scales, especially those between the back and lateral line.\* The colors of the two species are also different, the present having a very distinct sulphur-yellow spot immediately behind the dorsal fin, and extending obliquely forwards and downwards, as in *C. puncta*. This character was inadvertently omitted in the original description.

### Notes on the LABROIDS of the Western Coast of North America.

BY THEODORE GILL.

Within the short time that has elapsed since the publication of the descriptions of the Labroids of Lower California, two most important works relating wholly or in part to the Labroid alliance have been given to the world. Dr. Bleeker, after having published in the Proceedings of the Zoological Society of London,† and of those of the Royal Academy of Amsterdam,‡ an analytical conspectus of the family of Labroids, in his great work on the Fishes of the Indo-Molluccan Archipelago, has with great precision described and figured the numerous species of those seas. Dr. Günther has also issued the fourth volume of his Catalogue in which he has introduced some slight modifications in the generic arrangement formerly proposed by him, and has given diagnoses of all the determinable species.

The family of Labroids as understood by the writer has the limits assigned to it by Bleeker, the families Scaroids and Siphonognathoids being apparently valid. Günther has embraced the three under one family, and has even referred the genus *Siphonognathus* to a "group," including in addition *Odax*, *Coridodax* and *Olistherops*, considering the genera *Odax* and *Siphonognathus* "as closely and naturally allied as *Sus* and *Babirussa*." *Siphonognathus*, however, disagrees with Günther's diagnosis of the Labridæ in having no "ventral fins thoracic, with one spine and five soft rays," and instead of the "branchiostegals five or six," only four. As I both believe that a genus should have the chief characters of the family in which it is introduced—views shared with most naturalists—and believe that those characters in which *Siphonognathus* differs from the Labroids are important in this group of families, especially when joined to such a modification of form as it presents, I eliminate from the Labroids that genus formerly recognized as the type of a peculiar family by myself and shortly afterwards by Bleeker. If two such dissimilar groups have any analogies, I should say that *Siphonognathus* and *Odax* bear the same relation to each other as *Sus* and *Hippopotamus*—types of distinct families.

The generic distinctions of Dr. Bleeker seem to be in almost all cases happy, and the subfamilies Cheiliniiformes, Pseudolabrifformes Pseudodaciformes, (= *Pseudocina* Gthr.) Chelioniiformes, Labrifformes, (= *Labrina* Gthr.) Odaciformes and Clepticiformes appear to be natural, although concerning the first and fifth there may be some uncertainty. The other subfamilies—Novaculæformes, Labrichthyiformes and Cossyphiformes—appear to require revision.

Dr. Günther has enunciated for the first time a most interesting and important generalization for the Labroids which may also be extended to other families. "In those genera which are composed entirely or for the greater part of tropical species, the vertebral column is composed of twenty-four or nearly twenty-four vertebræ, whilst those which are chiefly confined to the temperate seas of the northern and southern hemisphere have that number in-

\* It is possible that the number of transverse rows of scales, and the longitudinal ones below the lateral line, given in my former description, may be too high, and is at least doubtful,—the scales having been mostly rubbed off, and only ascertainable through the scars left by them.

† Op. cit., 1862, pp. 408—418.

‡ Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen, Amsterdam, vol. xiii, pp. 94—109.